

WHAT IS CLAIMED IS:

1. A method for discriminating a peptide, comprising steps of :
  - (a) providing an organic compound which serves as an  
5 adsorbent, a cross-linker and a monomer;
  - (b) adsorbing said organic compound on a chip to form a single layer; and
  - (c) associating monomers with double bonds and template molecules to said chip to form a molecularly imprinted membrane  
10 thereon by polymerization.
  - (d) detecting by a quartz crystal microbalance (QCM) or a surface plasma resonance (SPR) equipped with a flow injection system.
2. The method of claim 1, wherein said organic compound is a derivative of cystine or homocystine.
- 15 3. The method of claim 2, wherein said derivative of cystine or homocystine comprises L-cystine, D-cystine, racemic cystine, L-homocystine, D-homocystine or racemic homocystine.
4. The method of claim 2, wherein said derivative of cystine is  
(Acr-Cys-NHBn)<sub>2</sub>, (Acr-Cys-NHΦ)<sub>2</sub>, (Macr-Cys-NHBn)<sub>2</sub>,  
20 (Macr-Cys-NHΦ)<sub>2</sub>, (Acr-hCys-NHBn)<sub>2</sub>, (Acr-hCys-NHΦ)<sub>2</sub>,  
(Macr-hCys-NHBn)<sub>2</sub> or (Macr-hCys-NHΦ)<sub>2</sub>; wherein hCys is homocystine, Φ is phenyl, and Macr is methacryl.
5. The method of claim 1, wherein said monomers are

(Macr-Cys-NHBn)<sub>2</sub>, (Macr-AA-NHBn)<sub>2</sub>, (Macr-Cys-NHΦ)<sub>2</sub>,  
 (Macr-AA-NHΦ)<sub>2</sub>, (Acr-hCys-NHBn)<sub>2</sub>, (Acr-hCys-NHΦ)<sub>2</sub>,  
 (Macr-hCys-NHBn)<sub>2</sub>, (Macr-hCys-NHΦ)<sub>2</sub>, methacrylamide, methacrylic  
 acid, *N*-benzyl-methacrylamide, (Acr-Cys-NHBn)<sub>2</sub>, (Acr-AA-NHBn)<sub>2</sub>,  
 5 (Acr-Cys-NHΦ)<sub>2</sub>, (Acr-AA-NHΦ)<sub>2</sub>, acrylamide, acrylic acid or  
*N*-benzyl-acrylamide; wherein AA is L-, D- or racemic amino acid, Φ is  
 phenyl and Macr is methacryl.

6. The method of claim 1, wherein said template molecule is amino acid, nucleic acid, carbohydrate, lipid or peptide.

10 7. The method of claim 6, wherein said peptide is oxytocin.

8. The method of claim 6, wherein said peptide is vasopressin.

9. The method of claim 1, wherein said organic compound is  
 adsorbed on said chip by dissolving (Acr-Cys-NHBn)<sub>2</sub> in a mixture of  
 acetonitrile (10 ml) and DMF (0.1 ml), which is then deposited on said  
 15 chip therein.

10. The method of claim 1, wherein said monomers with double bonds are acrylic acid, acrylamide and *N*-benzylacrylamide which are added at a molar ratio 1:1:2.

11. The method of claim 1, wherein said polymerization is  
 20 carried out by either irradiating with light at 350 nm for 6 hours or  
 heating at 50~100°C to completion.

12. A method for discriminating a peptide, using a combination technology of molecular imprinting and QCM, in which

$(\text{Acr-Cys-NHBn})_2$  is adsorbed on a chip to form a single layer; and then acrylamide, acrylic acid, *N*-benzyl-acrylamide are associated to said chip to form a molecularly imprinted membrane by radical polymerization.